Aviation Safety Program
Technical Accomplishment

Initial Laboratory/Field Experiments Plan for the Evaluation of Next-Generation Ground-to-Air Datalink Technologies.

POC: M Jarrell, GRC Date Completed: December 2002

Relevant Milestone: Initial Evaluation Plan for Next-Generation Weather Ground-Air Datalink Technologies (Level III MS 2.4.2-12)

Shown: Plans for 4 scenarios: Terminal Area , International/Oceanic, Regional/General Aviation and Transport with associated laboratory and/or field experiments providing performance and validation.

Accomplishment / Relation to Milestone and ETO: 4 key areas/scenarios were identified for definition, development, modification and validation: Terminal Area , International/Oceanic, Regional/General Aviation and Transport. These efforts are collaborative efforts with industry, FAA and other NASA centers.
Scenario 1: Terminal Area - VDLM2 for use in the Terminal Area provides a near real time capability for the reporting and dissemination of Turbulence, TAMDAR and aircraft telemetry data to all aircraft and the ground within a 100-mile radius of an airport.
Scenario 2: International Oceanic - Swift64 Packet Mode for use in the international and oceanic regions, provides a near real time capability for the reporting and dissemination of Turbulence, TAMDAR and aircraft telemetry data to appropriate aircraft and the ground. En-route ground-air dissemination of graphical turbulence and weather products is also supported.
Scenario 3: Regional/General Aviation - UAT for regional and general aviation, provides a near real time capability for reporting and dissemination of Turbulence, TAMDAR and aircraft telemetry data to the ground within a 100-mile radius of a ground station and aircraft within 100 mile. En-route ground-air dissemination of graphical turbulence and weather products is also supported.
Scenario 4: Transport - 1090ES/FISDL hybrid for transport, 1090ES provides the Air-Air/Air-Ground near real time capability for reporting of turbulence alerts and warnings to surrounding aircraft within a 100-mile radius and to the ground. FISDL provides the Ground-Air en-route distribution of graphical turbulence and weather products.

Future Plans: Preliminary Integrated Datalink Flight Demonstration Architecture Definition (1Q04); Flight Demonstration Datalink Architecture & System Interface Final Definition (3Q05).

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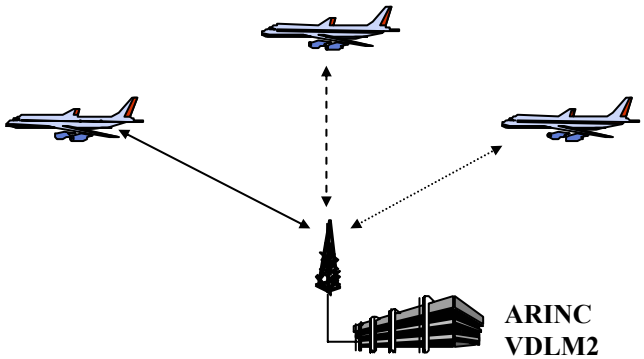
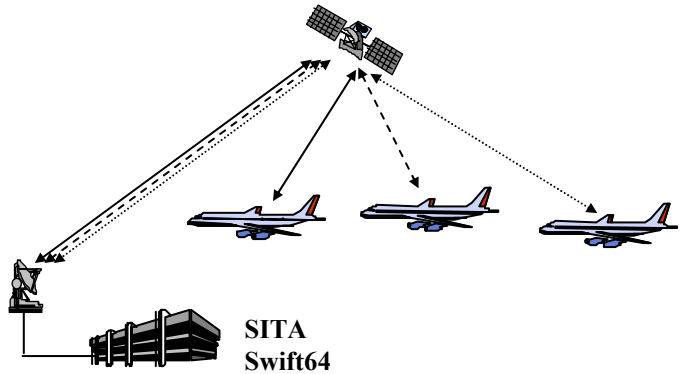
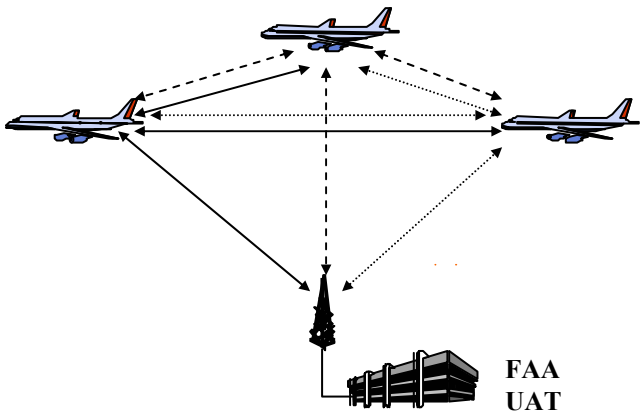


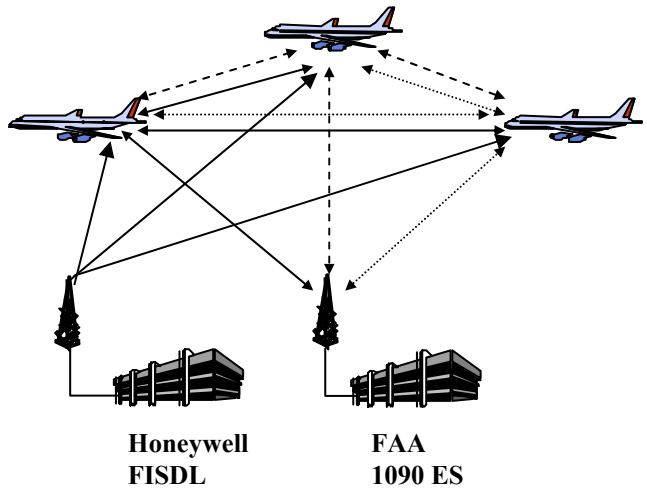
Terminal Area



International/Oceanic



Regional/General Aviation (GA)



Transport